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Amateur production of educational videos for viewing on mobiles: Addressing the poor technical and educational resourcing of the Creative Arts in a Nigerian university case study

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Abstract:	This research was a co-creation and co-assessment exercise between the researchers, participating printmaking and weaving academics and their students in a Nigerian university. The poor technical resources and increasingly large student groups in the design department, which severely hampers the delivery of an effective education, was addressed. The academics were supported to learn how to create their own instructional videos for their students, demonstrating identified designer-maker skills and how to use required equipment. These academics are now empowered and have the knowledge to produce their own instructional videos, without professional assistance. This is also irrespective of their previous experiences of using video equipment and developing video content.

Figure 1: A student charging a plate and a picture of an etching press

228x138mm (300 x 300 DPI)

Storyboard for the shooting of an instructional video: PLASTOGRAPHIC PRINTMAKING

1. Compose drawings

Action: (studio) artist making a drawing composition – (starting with a MS and slowly transiting to a MCU, CU and ECU of the artist's hands and the plate or paper concentrating on the drawing action of the artist's hands). (wipe)

2. Prepare plates

Action: (workshop) scene showing a metal plate being cut on metal guillotine, then filed to bevel and the washing process (start with a master shot at every change in venue) however most of the shots should be between MCU and CU on the specific subject in question). (wipe)

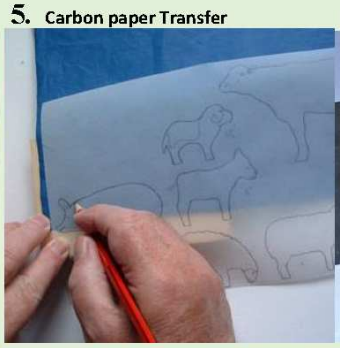
3. Transfer Drawings

Action: (studio) artist drawing directly on a metal plate, using a pen/pencil (camera shot- OTS trained on the hand and the plate in a CU shot), (wipe)

4. Making Drawing transparent

Action: (studio) cut to artist pouring oil on paper with the drawing composition showing how it becomes transparent. (starting with a MS and slowly transiting to a MCU and CU shots) (wipe)

5. Carbon paper Transfer



Action: (studio) cut to artist placing carbon paper on plate and tracing the drawn composition, concluding with a final result. (starting with a MS and slowly transiting to a MCU, CU and ending MS) (wipe)

6. Mixing and applying Epoxy

Action: (studio) artist pouring equal portions of part A+B of epoxy (adhesive) into a container and mixing vigorously (MCU to CU shot) (wipe)

7. Epoxy pouring Process

Action: (studio) cut to artist pouring the thoroughly mixed adhesive on the metal plate covering areas that will require engraving. (fade 'out' & 'in' to dipict time) Cut to scene where plate is laid out to dry. (MS to CU and back to MS)

8. Engraving - different types: Lino-cutter

Action: (studio) artist cutting through the hardened epoxy to create grooves on the lines earlier made by drawing on the metal plate (composition lines) using lino cutter (OTS / CU to ECU and back to CU) (wipe)

9. Using the Burin

Action: (studio) cut to artist cutting through the hardened epoxy this time with a burin (OTS / CU to ECU and back to CU) (wipe)

10. Using Electric Engraver Machine

11. Preparing Papers for Impression

12. Charging the plate

Action: (studio**)** cut to artist cutting through the hardened epoxy this time with an electric engraver machine (OTS / CU to ECU and back to CU) (wipe)

Action: (studio) artist pours water into a trough, then dips the paper into the trough to get the paper wet (soaked),
Then takes it out wet and lays it flat in between sheets of newsprints. (FS to MS) (wipe)

Action: (studio) artist takes a hard brush dips it in a tin of black ink and vigorously rubs it on the entire metal plate is covered. (MS to CU to ECU and back to MS) (wipe)

13. Wiping process

Action: (studio) artist uses rags and very thick paper to wipe (remove) ink from metal plate surface. (MS to CU to ECU and back to MS) (wipe)

14. Impression

Action: (studio) artist puts plate on the etching press bed and aligns the paper in such a way that the impression taken will have an even white border, making sure there are sheets of newsprint placed underneath and on top after laying the plate. Places the blankets, increases pressure on the blanket from upper roller and run (FS to MS to CU back to MS) (wipe)

15. Finishing: Pastel

Action: (studio) artist takes dried prints and applies oil pastel to introduce colour. (MS to CU to ECU) (wipe)

16. Finishing: Watercolour

Action: (studio) cuts to artist using watercolour in place of pastel, (MS to CU to ECU) (wipe)

17. Finishing: Mounting

Action: (studio) artist mounts the finished print on an already cut mount. Fades out on a finished print hanging on a wall. (FS to MS to CU back to MS)

Etsename Emmanuel Louis
University of Lincoln

Figure 2: Prototype videos were tested on mobile phones with a screen size of 457 millimetres.

228x112mm (300 x 300 DPI)

Collaborative amateur production of educational videos, which are viewed on mobiles: Addressing poor technical resources for Nigerian Creative Arts academics

Introduction

In the case study Nigerian university, the poorly resourced creative arts learning environment was impeding the delivery of an effective education to an increasing number of students. The resulting tools were a response as a result of the research. This approach was a response to the university being poorly resourced, resulting in the academics being severely hampered in delivering an effective education. This is a familiar situation across creative arts departments in Nigeria (Shu'ara 2010). This research was a co-creation exercise between the researchers, participating printmaking and textile academics and, in part, their students.

Following an initial survey targeted at the creative arts students and academics in the case study university, the researchers identified the academics could only begin to effectively teach the use of certain key equipment and associated skills if the students could access skills demonstrations information outside the taught skills learning sessions.

The research team collaborated with a sample group of 10 academics and 45 students in the case study university for 28 months, to explore how best to improve the teaching delivery of their programmes within the context of extremely testing educational conditions. The study developed the position that a constructive action for the participating academics to enhance their demonstration teaching was to produce their own instructional videos. These videos would capture them demonstrating a broad range of creative arts processes and use of equipment, such as a stills camera or a screen-printing table.

The aim of this research became the development of training tools that would enable participating academics to produce their own instructional videos, irrespective of their

previous experiences of using video equipment or developing content. These instructional videos also provided the print-making and textile students with the opportunity to reinforce their learning by being able to view these videos on their mobile phones. This meant the research project had to address how to produce videos that could be effectively viewed on a student's mobile phone. It transpires the majority of students in the sample group did not own smart phones.

Educational context: Nigerian higher education

Academics have identified that poor Nigerian Higher Education (HE) governance and leadership has continually resulted in ineffectual policy initiatives, inadequate funding, infrastructure and teaching (Adebayo 2010; Clark and Ausukuya 2013; Ololube 2016). There are indications that Institutions (HEIs) are grossly understaffed (Igbineweka and Ahmed 2013; Clark and Ausukuya 2013; Asiyai 2015). This under recruitment set against the annual increase in student numbers is one example of the multiple conditions that are negatively affecting the quality of teaching delivery within the creative arts disciplines (Shu'ara 2010). This can result in Nigerian students finding themselves in an HE system that is ill-equipped to supply them with the required education, including being taught by inexperienced teachers, as many of the experienced ones leave for environments with better pay and resources, often abroad (Oni 2000; Adebayo 2010). This is compounded by Nigerian HEIs appearing to lag behind their counterparts in the Northern Hemisphere in using digital technologies to improve learning environments and methods. The high cost of broadband also makes internet access expensive for most academics and their students (Tella *et al.* 2009; Alaba 2012).

Design departments in Nigerian universities

The focus of this study is the printmaking and textile design courses within a design department of a Nigerian University, which has rising student admissions each year but no

increase in resourcing. From 1999 to 2015 there was a rise from 15 to 96 students per design course (Ibiwoye 2015) at this case study university. This design department is typical, so reflects the challenges Nigerian creative arts HE is experiencing. The researchers argue the study of this design department can bring understanding to the challenges of the others.

Even though the case study is called an industrial design department the programmes are generally not industrial in focus but teach applied visual arts and designer-maker subjects. The authors argue that it is worse for students studying such courses in Nigeria due to the reliance on specialist equipment to teach key skills and applied knowledge. Some of the specialist facilities in the case study university have deteriorated resulting in fewer usable pieces of equipment, with resources neither replaced nor updated. With annual increases in the student population, this has resulted in less specialist equipment being available for student use.

Methodology

The primary aim of this research was to develop an appropriate practical solution to improve the effectiveness of the academics' demonstration teaching of technical equipment. This equipment includes, but is not limited to, cameras, screen-printing beds, and textile looms. A flexible research design was planned employing co-creation methods and qualitative social research techniques. Co-creation 'provides greater opportunities to explore and test knowledge in the context where the application is required and where implementation takes place' (Campbell and Vanderhoven 2016, 12). This approach has resulted in an iterative process of shared learning with the researchers and participating academics and students, so the research was undertaken with them rather than to them. Potentially co-creation enables different insights in the form of practical understandings, as those with the problem define it, and are actively involved in the resulting outcomes. This research utilised a variety of social

research techniques including: focus groups and workshops; formal and informal discussions; semi-structured interviews; online questionnaires; and the co-creation and testing of prototype instructional videos.

Everyday ethics

The researchers' university ethical review procedures were adhered to, but this was strained on occasions due to the flexibility inherent in this research project. The way the authors addressed this issue was through exploring "everyday ethics" which Banks *et al.* describe as "the daily practice of negotiating the ethical issues and challenges that arise" through the life of a research project (2013: 266). This approach draws on "virtue ethics", which places prominence on qualities of character (Banks and Gallagher 2009) and the ethics of care, which focuses on the responsibilities attached to particular relationships (Held 2006; Tronto 1993). This led the author to adopt Campbell and Vanderhoven's stance that ethics in relation to co-creation should be regarded as "less about procedural conformity and more about the demonstration of an ethical state of mind" (2016: 30).

Co-creation thinking

The aim of co-creation research is to engage with relevant stakeholders and encourage them to participate in identifying and addressing problems through the use of various visual arts and social research techniques to collaboratively uncover innovative feasible solutions. In addition, through engaging in this process certain stakeholders will be empowered to implement the proposed solutions. This research project has contextualised the use of co-creation within the quasi-concept* of Social Innovation (SI), which is employed in this

* "… a concept which … is more than simply a slogan or 'buzzword' because it has some reputable intellectual basis, but it may nevertheless be found vulnerable on analytical and empirical grounds. What is special about such an idea is that it is able to operate in both academia and policy domains" (McNeill, 2006, 335).

research as innovation that delivers social benefits to a community through 'the creation of new products, services, organizational structures or activities that are "better" or "more effective" than traditional public sector, philanthropic or market-reliant approaches' (Moulaert *et al.* 2013, 1). A core SI principle is an open and participative research approach that involves the eventual 'users' at every development stage of the solution (Murray *et al.* 2010, 7).

Stage one research: Exploring the teaching and learning conditions of the case study design department

The stage one research investigated the teaching and learning conditions of the designer-maker courses at the case study university and why academics thought it was increasingly difficult to provide a quality education to students. Desk research was undertaken to review the academic literature on the contemporary Nigerian HE sector. A literature search on contemporary Nigerian HE followed a stepwise methodology to identify the highest quality research available. Database searches were made for research that was published in English between the years 2000 and 2016 using a combination of words: 'Nigeria', 'Nigerian', 'Africa', 'African', 'higher education', 'university education', 'university governance', and 'teaching performance'. The search was undertaken using the XXXXXXXX's EBSCO Discovery Service that enabled the search of all the institution's databases simultaneously. This incorporates a wide array of academic databases. Abstracts were screened for indications of the article covering the obstacles faced by Nigerian academic institutions in providing a quality education and services.

Following this screening, full papers and books of the references were collected, read and mapped. Furthermore, a systematic screening, 24 peer-reviewed articles, conference papers, and academic books were selected. The review identified the key problems affecting the successful management of the Nigerian university education system. Universities are currently operating in very difficult circumstances, both in terms of the social, economic, and political problems. The main relevant issues identified were: financial crisis, poor infrastructure, brain-drain, erosion of university autonomy, graduate unemployment, volatile and militant students' unionism, and examination malpractices.

The review of literature was followed by semi-structured interviews with a sample group of stakeholders that represented different key groups within the Nigerian industrial design HE system, such as students, academics, administrative staff and some executive staff of the Ministry of Adult, Vocational and Technical Education. A total of 26 people were interviewed. In addition, the teaching and learning activities of the printmaking and textile design students and academics in the case study university were observed.

It was found the teaching approaches of the printmaking and weaving courses were tailored towards the apprenticeship training method. This is where the learner acquires key practical skills mainly through academic and technician demonstrations and involves close observation by the learner. Therefore the ideal study group for these courses is small, and the students watch a demonstration and then provided with an assignment. On completion, the assignments are displayed and critiqued, followed by the work being collected for assessment.

If the department's aims are to be achieved insufficient specialist equipment and facilities for the number of students was observed, and some of this equipment ought to be repaired (see Figure 1 and 2 below). In addition, due to large course sizes and fewer technicians and academics, teaching demonstrations in small student groups was not possible. As Student IV interviewee confirmed:

> 'We do not have enough staff, the only one is a technologist who has been teaching for the past three years. He is accessible as he can be. He's very busy, he is the only one who takes the course in 300, 400 & 500 levels. He is very good'.

At the time of interviewing each course had one academic per year group to teach weaving and printmaking. Interviewees stated there were over 90 students per level, which was verified by the university's registration records (Ibiwoye 2015).

Figure 1 image here

Figure 1: A student charging a plate and a picture of an etching press

The core teaching and learning problems affecting the sample group of academics and students were:

- Poor funding.
- Inadequate equipment and space (classrooms, studios, and laboratories).
- Time constraints on academics being able to adequately teach large numbers of students.
- Existing process of teaching and learning are not suitable for contemporary creative arts Higher Education.

The stage one research found the teaching of designer-maker courses at the case study university would benefit from assistance with teaching and demonstrating key technical equipment and reinforcing this learning. An increase in the academics to students ratio was

extremely unlikely to occur soon due to the HE financial crisis, so interviewed students and academics suggested practical solutions to assist with teaching delivery. Instructional teaching tools, such as videos, were proposed as a way to assist academics to provide and reinforce teaching. Safer (2012) concurs with this proposal as using visuals (photographs and videos) can assist training and teaching to be more realistic and accurate, as well as reduce teaching costs and time. Due to inadequate internet performance at the case study university student interviewees recommended the use of their mobile phones to view instructional teaching tools. It was found the majority of students and academics owned mobile phones and were adept at using them but most of these devices did not have many functions and powerful operating system capabilities.

Porter (2012, 241) observes that 'for many very poor people in sub-Saharan Africa, including children, the mobile phone is now perceived as an essential requisite: an object of desire and a symbol of success.' Etzo and Collender (2010) assert that in Africa particularly Nigeria, mobile phones are now about the cheapest and quickest way to communicate and their ubiquity is matched only by the ingenuity of their users. The mobile phone is therefore a suitable tool for advancing teaching delivery at Nigerian HEIs because of the low cost, user-friendly features and accessibility, in addition to increasing ownership across most socio-economic groups (Etzo and Collender 2010; PewGlobal 2015).

Producing instructional videos for the academic participants seemed the most effective way of assisting them, following the stage one results. The idea became these instructional videos would demonstrate detailed practical skills required in the printmaking and weaving curriculum, that the academics and technicians did not have time to teach or reinforce. It was already acknowledged video played on a mobile phone can be an effective way to support creative arts higher education (Prosser 1998; Noble and Bestley 2011).

Stage two research

Kasumuni (2011) asserts the multiple uses of the mobile phone has not yet been sufficiently exploited in the African higher education sector, in particularly Nigeria, where there is great potential. The stages two and three research therefore focused on the production of 'instructional videos' for demonstrating visual arts and design skills within the context of the case study university and the viewing of these videos on a mobile phone.

The design brief

To address the findings of the stage one research and additional focus group discussions with three printmaking and weaving academics and twenty-three of their students, a design brief was developed to direct the production of a prototype presentation instructional video. Specifically, the video would need to be created for viewing on a mobile phone that had similar characteristics to those owned by the student sample group. This raised various questions requiring further investigation:

- What type of mobile phone did the student research participants used?
- How adept are they at using their mobile phones?

A short online questionnaire was developed using SurveyMonkey that attended to these questions and 31 students printmaking and textile design students responded. It was found the students' mobile phone screen sizes were generally smaller than that of a smart phone. 7 out of 31 respondents stated limited screen size does restrict them watching videos. The majority respondents were nevertheless adept at using their phones and aware of its features but not of the phone's capabilities.

These findings would now be considered in the design and production of any instructional video intended for their viewing. The design brief now specified the prototype instructional video would need to be produced for a mobile phone screen size of 457 millimetres (see

Figure 2 below). The screen size was the smallest indicated by student respondents in the survey and four owned such phones. This was to ensure that all students had the opportunity to effectively view the prototype instructional video on their mobile phone. Rodriguez (2007) and Kasumuni (2011) emphasise that instructional educational materials to be used on a mobile phone should be designed, structured and compressed for small pages so they are easy to view on small screens.

Figure 2 image here

Figure 2: The prototype instructional video was produced so that it could be viewed on a mobile phone with a screen size of 457 millimetres.

Following the survey results the participating students and academics collaborated in a workshop to discuss the prototype video content with XXXX, and the resulting key content ideas were agreed upon and written into the design brief.

Stage 2: Producing a prototype demonstration instructional video

The stage two research became concerned with developing and testing a demonstration instructional video on printmaking. Reflective research practice was used by XXXXX to determine the production processes and skills required to develop an instructional video. He also explored the technological, creative and logistical opportunities and limitations of the case study university's central media resource unit being able to produce instructional videos

for the participant academics. Then the academic and student participants were asked to evaluate the effectiveness of the resulting prototype instructional video.

A small quantity of research into video-based instructional tools to support learning in HE has been developed in Nigeria and other similar demographic countries. An example is Daniel (2010) who produced a video in Ghana with the intention of helping textile design teachers who lacked the basic skills of practical weaving on a broadloom. Nevertheless, such research from this region did not indicate or elaborate on how the instructional videos were produced; whether the users' (learners) were involved in the production or consulted; whether the videos were first tested; what the users' opinions were of the video, and what they were expectations.

A storyboard was produced addressing the design brief goals as well as showing the key scenes, cue shots, the order and sequence of the shots, and when other materials would be required. The video production involved recording an expert practitioner demonstrating certain relevant practical skills, in this case the plastographic printmaking process. The development of this prototype was guided by the course curriculum, as well as the involvement of the printmaking and weaving academics and their students through an iterative participatory co-creation and evaluation process.

Figure 3: Section of the storyboard

During the production of this video the authors consulted XXXXXXX, an expert commercial video producer with 40 years professional experience. This resulted in special emphasis being given to the recording of video rushes in high definition, as well as camera shots in most scenes being in close-up or extreme close-up to optimise visual composition and quality for

viewing on the small screen of a mobile phone. A key objective of producing a prototype demonstration instructional video was to show a quality example to the participating academics' and the university's media unit. In addition, for the researchers the production of this video was a reflective action research exercise, to explore the practices and skills required.

Alongside the creation of this demonstration video, the feasibility of the university's media unit to produce such videos for the participating academics was explored by XXXXX. It transpired a key barrier was the staff in this unit insisted students would need to access any videos via the internet. This was a problematic decision as this approach had associated high costs for the participating students and staff, and the performance of the internet was sporadic at the university and locally. Furthermore, the media unit would not guarantee they could provide an on-going video production service to these academics. The quality of their video production work was also unknown as this would have been a new service offering.

It became apparent the only constructive way for the participating academics to have access to relevant instruction videos was for them to produce their own, rather than rely on their university's central media unit. These participating academics are already experienced in teaching and demonstrating their skills to students, and this knowledge could be transferred to video. It emerged many of these academics were enthusiastic about making their own instructional videos, as it meant they would not be beholden to a central media unit for the resources they desperately required. They also remarked they would also have total control over the video content. So the production of the instructional videos by a central media unit became a less favourable option to the academics.

Stage 2: Supporting participating academics to produce their own instructional videos

Collaboration with the participating academics to develop their own localized instructional videos began to produce their own videos, and then test these prototypes with their students. The research addressed this change by first producing a tool that would guide the academics through the process of creating their own instructional video. Interviews with the academics determined they had not produced a video before to supplement their teaching, and viewed this practice as a teaching innovation. The content of this guidance tool would need to demonstrate the practicalities of video production and set quality benchmarks.

Recommendations for producing an instructional video to be viewed on a mobile phone were developed. The following were recommended to the academics as to what they should consider:

- Ensure the video communicates the intended learning.
- Compress the video so it can be played effectively on all mobile phones.
- Images are clear and large enough to be easily viewed on mobile phones with small-size screens.
- The filming should concentrate on close-ups and extreme close-up shots. The backgrounds also need to be in high-contrasting colours to offset objects and images being recorded.
- The pictures and content need to be devoid of distractions such as visual effects and complicated transitions.
- Demonstrations and teaching being presented in situ preferably the students' studio.
- Language used in the video should be local and accents from the region, where the university is based.

Stage three research: Development and testing of a guidance video

The first prototype guide produced by XXXXX was created as a PowerPoint presentation, as the intention was to make the viewing format accessible and straightforward for the participating academics. The development of the prototype guide began in the same way as the demonstration instructional video with a storyboard, followed by filming. The academics in a co-creation workshop reviewed this prototype and then designed improvements. All ten academics interviewed recommended a guidance video rather than a Powerpoint presentation as they felt it was better suited to the subject. As Academic VI affirms: 'Video would have been more explanatory, suggesting the use of video instead of PowerPoint'. In addition, the academics recommended audio should be added, as there was no audio on the prototype PowerPoint guide. The new guidance video should though utilise the structure and content of the PowerPoint presentation.

The user's experience is extremely important in helping to determine if a product is going to add value to a system or solve a problem. Five of the ten participating academics collaborated with XXXXX to develop the guidance video, resulting in interest from other academics and technicians in the department, who later become involved in testing the new video. They understood the motivation for this project and as Academic III establishes: 'it is going to be an effective tool, right now even, and others are already planning to use something similar to handle some of their subjects for the semester'.

Stage three: Academics produce their own instructional videos

The guidance video and demonstration instructional video were sent to the ten participating academics, who were encouraged to continue to contribute to the research project by viewing the two videos and then produce their own instructional video. Of the ten academics

approached, four created their own videos. These academics were also interviewed at intervals as they produced their videos, to ascertain:

- Whether the guidance video had influenced them and how when producing their instructional video.
- If the academics had encountered any challenges using the guidance video.
- If producing their own instructional video had begun to influence their attitudes towards course content and teaching delivery.

The four academics opinions were also sought on the five instructional videos produced, through small group video screenings followed by a focus group discussion. Due to the summer vacation telephone interviews were conducted with five students who were amongst ten students asked to appraise the 'loading and unloading film into a camera' instructional video, to establish whether it communicated and demonstrated how to achieve certain skills and outcomes. The students were asked how useful the video was and what could be improved. The main response was the students found this video an effective teaching tool, as Student IV explained: '[…] even without the teacher's class demonstration, if you watch the video you will definitely have an understanding of how to go about loading and unloading film into a analogue camera'.

Three out of the four academics had not tested their prototype video on students, which they explained was due to the students being on vacation at the time the academics were producing their videos. One of them had encouraged other academic colleagues to start producing their own videos. The four academics keenly envisaged that producing videos would enable them to take more control over their teaching circumstances and improve their students' learning, 'because I don't have to repeat and repeat [*information*], because they can

watch by themselves and understand watching the steps, following the steps…' (Academic III).

Transferring an instructional video to the students' mobile phones

One of the constraints faced by the academics when producing their videos was the compression of the finished video to a file size that enable effective transfer to the types of mobile phones presently owned by their students. 11 out of 31 students had mobile phone storage space constraints, and therefore large video files would only compound this storage issues. It became apparent the researchers needed to determine whether the academics had managed to compress their video files properly so as not to lose viewing quality. The four academics were interviewed again and the semi-structured interviews found two academics expressed frustration with the compression process. To resolve this challenge, the academics needed to learn how to compress videos using specific codecs, and which type would compress to an appropriate size without losing video quality, so advice on compressing video files using codec information would need to be inserted into the guidance video.

Discussion

In this case study, we argue that to improve the teaching circumstances of the participating academics, socially innovative solutions were necessary. To make these tools functional for both academics and students necessitated collaborative development. This resulted in the co-creation of a prototype guidance video and demonstration instructional video that was increasingly attuned to the requirements of the participating academics and student viewers, in a locally relevant manner. The participatory approach to this research project with the academics and students resulted in the participants having a greater understanding of the issues due to a concerted exploration, as the resulting innovative solutions had been developed, tested, refined and then produced collaboratively. The participating academics are

now producing their own instructional videos, and the idea is gaining momentum amongst academic and technician colleagues. They have reported back to XXXXX that they are progressively mastering the compression of their video files, and students are switching to smart phones. They are also anticipating reducing certain demonstration sessions that repeat teaching particular skills because they now have produced instructional videos explaining this material.

In the near future students who have not been able to fully engage in a lesson due to the large class size, or lack of equipment availability, will be able to access the required learning via a video on their mobile phone. This is because the prototype demonstration instructional video and guidance video have helped demystify the video production process for the hitherto novice academics. Some of the participating academics had previously thought it was too difficult to create their own videos, as Academic I reveals:

> '[…] I didn't know it is something I could do in a very simple way; so I initially thought I needed the type of gadgets here and there, you know; to get the lighting, and to get the stand and all of that, but eventually I improvised […] I was trying to get all the gadgets and maybe do, say, a conducive environment, eventually I decided to do something simple and it eventually came out nice'.

These participating academics have shown basic video production skills could be learned swiftly, resulting in the production of an instructional video to support their teaching. On reflection, a consequence of the principles of this study is the recognition of the importance instructional video has in reflecting the indigenous creative methods, skills and teaching environments of the academics and courses, including that the language and accents used in the video echo those of the academics and students.

Implications of the research

A 'boundary space' (Pohl *et al* 2010, 271) for 'academic research and community life, together' (Dunrose *et al* 2011, 6) allowing participation around common interests, creating understanding of situations and resulting in participants working towards it, was a key aim of this project. Part of this learning process has to be based on respect, openness and deliberation (Pohl *et al* 2010: 271). Due to the stressful atmosphere in the Nigerian case study university, the establishment of trusts and open dialogue took time to foster, and was always delicate, which is typical in the Nigerian HE sector (Aluede, 2012; Chinyere and Chukwuma, 2017). This slowed the academics becoming self-sufficient knowledge producers and social innovators. Nevertheless, creating the prototype videos had the advantage of managing the conversation and participation amongst the researchers, academics and students. It offered common foci for dialogue, potentially boosting engagement and empowerment processes.

This research acknowledges that the innovations developed during this study are only a partial solution to the problems of teaching large student cohorts in the design department with the case study university. Until there are significant improvements in the educational infrastructure and resourcing at this Nigerian university the academics will still be working in a teaching environment that hampers the delivery of a quality education. The research has identified the mobile phone as a valuable vehicle for delivering inclusive teaching and learning via video in creative arts higher education. Such an approach can positively influence the design of educational content, but it also affects the nature of pedagogy, budgets and education management through reinforced student learning (Bonk and Cunningham 1998; Bonk 2004).

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